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WGU C949 Objective Assessment V2 (New 2023/ 2024) Data Structures and Algorithms I | Questions and Verified Answers| 100% Correct| Grade A

Q:UESTION

Which technique involves reducing a problem to smaller subproblems and solving them recursively?
a. Greedy technique
b. Divide and conquer c. Backtracking
d. Dynamic programming

Answer:
Divide and conquer

Q:UESTION

What is the purpose of an algorithm's pseudocode?
a. To serve as an executable program
b. To provide a formal specification of the algorithm c. To generate random test cases for the algorithm
d. To analyze the memory usage of the algorithm

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Answer:
To provide a formal specifica- tion of the algorithm

Q:UESTION

Which of the following is NOT a common algorithmic paradigm?
a. Greedy algorithm
b. Divide and conquer c. Backtracking
d. Sequential search

Answer:
Sequential search

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Q:UESTION

What is the time complexity of a binary search algorithm?
a. O(1)
b. O(log n)
c. O(n)
d. O(n^2)

Answer:
O(log n)

Q:UESTION

Which algorithm is used to find the maximum sum of a subarray in an array?
a. Breadth-first search (BFS)
b. Depth-first search (DFS)
c. Dijkstra's algorithm
d. Kadane's algorithm

Answer:
Kadane's algorithm

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Q:UESTION

What does the term "in-place" mean in the context of sorting algorithms?
a. The algorithm sorts the elements in ascending order.
b. The algorithm rearranges the elements without using additional memory. c. The algorithm modifies the input array directly.
d. The algorithm guarantees the best-case time complexity.

Answer:
The algorithm rearranges the elements without using additional memory.

Q:UESTION

Which algorithm is used to find the shortest path in an unweighted graph?
a. Breadth-first search (BFS)
b. Depth-first search (DFS)

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c. Dijkstra's algorithm
d. Bellman-Ford algorithm

Answer:
Breadth-first search (BFS)

Q:UESTION

What is the purpose of analyzing the space complexity of an algorithm?
a. To determine the best-case time complexity of the algorithm b. To estimate the actual runtime of the algorithm
c. To analyze the memory usage of the algorithm
d. To optimize the algorithm's execution speed

Answer:
To analyze the memory usage of the algorithm

Q:UESTION

Which data structure is typically used to implement a queue?
a. Array
b. Linked list c. Stack
d. Hash table

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Answer:
Linked list

Q:UESTION

What is the purpose of a sentinel node in a linked list?
a. To mark the beginning of the linked list b. To indicate the end of the linked list
c. To store a special value in the linked list
d. There is no such thing as a sentinel node

Answer:
To indicate the end of the linked list

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